Profitable Poultry.

by

W. B. Tegetmeier.

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Harry Soane. 1882.



BLACK SPANISH.

Ch Darwin Esq.
with W B Tegetmeiers
respects.

PROFITABLE POULTRY;

THEIR MANAGEMENT

IN

HEALTH AND DISEASE.

BY W. B. TEGETMEIER,

AUTHOR OF A SERIES OF PAPERS ON THE DISEASES OF POULTRY, IN "THE COTTAGE GARDENER," "THE POULTRY BOOK," &c., &c.

WITH ILLUSTRATIONS BY HARRISON WEIR.

NEW EDITION GREATLY ENLARGED.

LONDON:

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PREFACE.

In issuing this edition the Author begs leave to tender his sincere thanks, firstly, to the public whose rapid purchase of an unusually large impression has enabled him to issue the present greatly enlarged, and, he hopes he may add, improved edition; secondly, to his brother amateurs to whom he is indebted for so many suggestions and so much valuable assistance; thirdly, to his reviewers, all of whom have spoken so favourably of his efforts to impart sound practical common sense, in place of the gross absurdities, which, it is not too much to say, previously disfigured all the low-priced poultry works; to the distinguished naturalist who did him the honour to give a lengthened review of the work in Fraser's Magazine (Dec. 1853), he gladly takes this opportunity of expressing his thanks, as he is personally unknown. The present is distinguished from the last edition by the extension of such parts as were previously meagre; a table of the constituents of food has been added, which it is hoped may prove useful; a longer account of several varieties has been given, and the chapter on diseases has been considerably enlarged, and several new remedies indicated.

Willesden, Midsummer, 1854.

PREFACE TO THE FIRST EDITION.

The object of this little work is purely practical; its aim is to place in the hands of persons who may not have had much experience, a book which should contain all that is most essential to be known respecting the housing, feeding, breeding, and treatment of fowls; and to this has been added such information as the experience of the author has enabled him to give respecting the most profitable varieties viewed as agricultural stock.

August, 1853.

PROFITABLE POULTRY,

&c. &c.

THE FOWL HOUSE.

The singular fact that our common domestic fowls are destitute of any particular English name, points at once to their foreign origin; and, although in the course of many generations, they have become greatly inured to the rigors of our climate, they still retain so far their original constitution as to require the protection of a habitation during, at least, great part of the year.

One of the most important requisites in a fowl house is absolute dryness, nothing being more fatal to poultry than damp; on clayey soil, or in moist situations, dryness must be secured, either by drainage or by raising the floor several inches above the surface of the ground; in cold situations especially, the aspect of the house is also of some importance; if practicable, the windows and other openings should face the south, as this secures a greater degree of warmth during the winter, an advantage which is also obtained by having the roof ceiled.

The perches on which the fowls roost should be low, especially for the larger varieties, as otherwise the violence with which they descend causes lameness, and not unfrequently fracture of the breast bone; in order to prevent the breast bones becoming crooked (a circumstance which greatly injures their appearance,

and consequently their value as table birds), the perches should be much larger than ordinary; a split fir pole, three inches across on the flat side, which should be turned downwards, will be found advantageous, and a height of not more than three or four feet is desirable, as it enables the fowls to be readily caught after they have gone to roost, and prevents lameness; for Cochins it is even necessary that the perches should be much lower; their height should certainly not exceed one foot from the ground, otherwise, from the imperfect powers of flight possessed by these birds, the evils alluded to are very apt to occur. Heavy birds of this variety are sometimes subject to inflammatory tenderness of the feet; to prevent as much as possible the tendency to this disease, it is advantageous in these cases to lay some straight straw lengthway along the top of the perches, binding it in its place with string.

The ground below the perches should be strewed with sand, gravel, or ashes, to a considerable depth, so that the dung may be removed without soiling the floor. This should be done every morning early, and the house thrown open during the day, so as to be thoroughly purified. It seldom happens that fowl houses are so built, as to require any distinct contrivance for ventilation; in cases, however, where the door and window are air-tight, means should be afforded for a proper supply of fresh air; there should be an opening at or near the bottom, and another at the top, these should be covered with pieces of perforated zinc, to prevent any direct draught of cold air, which is very injurious. Cleanliness is also a consideration of the highest importance in a fowl house; if ashes or sand are used, as recommended, and the dung removed daily, this is readily secured; and in order to prevent as far as possible the annoyance of vermin, the house should be lime-washed once or twice a year, and the birds also be provided with a box full of dry dust or ashes to *bathe* in.

The difference between the health of fowls thus cleanly and warmly housed, and that of those compelled to roost in a dark, damp, dirty habitation is very great; these latter never becoming in good condition. So injurious is damp and cold, that I have known instances in which all the inhabitants of a poultry house have been attacked with violent catarrh terminating in roup, from an east window having been left open on a cold wet night; and it has been found by experiment, that scrofula may always be produced in chickens by confining them in damp, cold, and dark habitations.

I have found that exceedingly economical and efficient poultry-houses may be built against any wall that is conveniently situated, the sides and front being boarded, and the roof formed of inch deal boards, laid closely edge to edge, up and down the slope, and projecting over the sides and front so as to throw off the rain; the top should be covered with thin cheap calico tightly strained, and, by brushing this over with a good coating of coal-tar, it is cemented to the roof, which is thus rendered water-tight.

The patent Asphalte felt forms a cheap and warm roofing, but it also requires to be tarred over, in order to resist the weather. If the poultry-house is tiled, the downward current of cold air in winter, may be prevented by lining the roof with straw supported by laths nailed to the rafters; and in other cases I have found that stout brown paper, oiled or painted, and tacked smoothly to the under side of the rafters, has been very efficient in increasing the warmth of the house, and consequently the production of eggs in winter.

FEEDING.

There is, perhaps, no subject on which a greater diversity of opinion exists among poultry keepers, than respecting the relative value of the different substances used as food. This difference of opinion arises from the general ignorance that prevails with regard to the true principles of feeding. It cannot be too strongly impressed on all feeders of stock that the food eaten has to serve several distinct purposes when taken into the body. One portion is consumed in supporting the natural warmth of the animal; another set of substances supplies the nourishment required for the growth of the body, and replaces the daily wasting that occurs; a third yields the materials from which the bones are formed; and a fourth supplies the fat which is stored up in the bodies of animals; we may, therefore, speak of the following classes of foods:—

1st. *Warmth-giving Food.*—As starch, which forms almost the entire bulk of rice, and the solid portion of potatoes; gum, sugar, &c.

2nd. *Flesh-forming Food.*—As gluten, &c., which exists in large proportion in wheat, oatmeal, peas, beans, middlings and sharps, and in somewhat smaller quantity in barley, Indian corn, &c.

3rd. *Bone-making Food.*—Which is found in larger proportion in the bran, or outer part of the grain, than in the inner parts.

4th. *Fat-forming Food.*—Consisting of fatty or oily substances; these occur, to a considerable extent, in Indian corn (the yellow variety), oatmeal, middlings, bran, &c.

All experiments that have been made tend to prove that each

of these kinds of food is unable to serve the purposes of the others; thus, to give an example, neither warmth-giving nor fat-forming substances are capable of adding to the flesh of a growing animal, nor can flesh-forming food increase the quantity of fat. In a mere elementary work, like the present, it is impossible to go into this subject at any great length. Those who desire the facts on which these statements are grounded are referred to the works of Johnston, Liebig, and other eminent agriculturists and agricultural chemists. We must take the principles as granted, and apply them to an examination of the different substances usually employed in poultry feeding.

GRAIN forms the staple food of poultry, the varieties used being generally either barley, oats, wheat, Indian corn, or rice.

Barley is perhaps more frequently used than any other grain; it is better relished by fowls than oats, and its first cost is considerably below that of wheat. It contains from ten to eleven pounds of flesh-forming, sixty of starchy substances, and two to three of oil or fat in every hundred.

Oats are not taken so freely as barley, which is apparently owing to the large proportion of husk they contain, which lessens their value as poultry food; but when used in the form of grits or oatmeal they are eaten with great avidity, and in this state furnish one of the most wholesome and nutritious varieties of food, containing eighteen of flesh-forming, sixty-three of starchy substances, and six pounds of fatty materials in every hundred. No grain contains a larger proportion of flesh-forming substances than oatmeal—it is, therefore, the one best adapted to growing animals, and I have found that chicken make much more rapid progress when it forms the chief portion of their food than when fed on any other substances. Cochin, and Spanish chicken especially, show its good effects by the rapidity with which they feather when fed with it.

Wheat, contrary to the popular opinion, is not more nutritious than oatmeal; it contains about twelve pounds of flesh-forming nutriment, seventy of starchy, and two to four of oil, in every hundred. Its cost operates considerably against its employment, although it is extensively used by some breeders of choice poultry, with whom expense of feeding is a secondary consideration.

Indian Corn is remarkable for the large proportion of oil contained in the yellow varieties, which averages eight pounds in every hundred; its capability of putting on flesh is not greater than that of barley, as it contains only eleven per cent. of flesh-giving food, and sixty-six of starchy matters. Cochins seem remarkably fond of it, but I have found that it is refused by Dorkings and Spanish, when they are able to obtain other grain.

Rice is the least nutritious of all grains, and therefore the worst that can be given to growing animals. In the husked state in which it is usually found in this country, it contains scarcely any fat, or bone-making materials, and only seven per cent. of flesh-forming food, (less than half the quantity contained in oatmeal,) being almost entirely composed of starch. Boiled rice is a useful variation in the food of fowls, and is much relished, but as the main support of growing chicken it is very objectionable.

Buckwheat Flour is about equal in nutritive properties to that of wheat, but the large proportion of husk that the unground seeds contain, must be taken into account in estimating its money value; it is commonly supposed to cause a greatly increased production of eggs, but its chemical composition does not shew any superiority over many other varieties of food.

Dhoora, or Indian millet, a small grain largely cultivated in the east, is employed by some poultry keepers; it is much relished by fowls; the nutritious properties of the flour are very similar to those of wheat, and as it contains very little husk, it may be regarded as a valuable addition to the poultry dietary.

Malt Dust, Malt Culm, and Cummins, are names given to the small sprouts of the barley which are broken off in the process of malting, and form a coarse fibrous powder. Malt dust contains from two to three times as large a proportion of flesh-forming food as wheat, and in this respect far supasses any of the substances ordinarily used as poultry food; its value not being generally known, it is frequently used as manure; mixed with soft food, it is much relished by fowls, and as it may be obtained at a remarkably cheap rate, its employment is very advantageous.

Bran, Pollard or Randan, and Middlings or Sharps, particularly the latter, I regard as most valuable additions to the food of poultry. In the first place they are economical—and they contain a very high proportion (eighteen per cent.) of flesh-forming substances, and a very considerable quantity of oil (six per cent.) Another circumstance which adapts them to the use of chicken is the large proportion of bone-making materials they contain.

Many poultry feeders are in the habit of preparing the grain before use; some simply soak the barley or other corn, by placing it in water the previous evening, this lessens the time it has to remain in the crop, before passing on into the gizzard; others boil their corn, a proceeding which has the advantage of rendering it more digestible, as it effects an important change in the starchy part of the grain. Rice, especially, should always be boiled before use, and it should be cooked in such a mode as to allow the grains to remain separate, which may be easily managed by boiling it in a large quantity of water, to which a small piece of fat, as lard or dripping, has previously been added. The experience of all experimental agriculturists is in favour of cooked food for live stock of all descriptions: from the change effected in the starch it is more nutritious, and is more rapidly digested; hence, there is less work for the stomach and digestive organs to perform, and therefore they are less liable to become diseased. From considerable experience in its employment, I can strongly recommend

the following cooked food, as being exceedingly well adapted to supply all the substances requisite to support a healthy and vigorous existence. A quantity of middlings, with or without half its bulk of barley-meal, or a corresponding proportion of malt-dust, is placed in a coarse red ware pan, and baked for about an hour in a side oven, or until the mixture is thoroughly heated throughout; water is then poured in, and the whole stirred together until it becomes a crumbly mass; if too much water is added, the mixture becomes cloggy, a defect which is easily remedied by stirring in a little dry meal. The advantage of this method is that the food is prepared with scarcely any trouble, and there is no fear of its being burnt as in boiling. Sometimes the barley meal is omitted, and the baked middlings mixed with rice which has been previously boiled. This mixture forms the stock food of my old fowls, a liberal supply of grain being given during the day. I have found that since its adoption they cost less in food, and that they are in equally good or even in better condition than when fed on an unlimited supply of grain alone. Should the convenience for baking not exist, it will be found more desirable to scald the middlings and meal with boiling water than to mix them with cold.

If grain of any kind is broken or crushed, it should only be done shortly before use, unless it is thoroughly kiln dried; for when this is not done, the grain, from the moisture it contains, soon becomes musty, sour, and unwholesome. Inferior samples of grain contain so large a proportion of husk that they are not desirable, and if regarded with reference to their nutritious properties the best will be found the cheapest.

Potatoes, when plentiful and free from disease, may be advantageously substituted for rice, which they closely resemble, in containing a large amount of starch; there is less waste in their use, if steamed, than when boiled.

Peas, Beans, and Lentils, either whole or ground, are much

used by many feeders; they contain a larger amount of flesh-forming food than grain—on the average about twenty-four per cent., whilst the quantity of fat is very small, not usually more than two in every hundred; but they are not easily digested, and are too stimulating to be regarded as a wholesome diet. I have traced many cases of disease, such as white comb in Cochins, inflammation of the stomach and egg passage, &c., &c., to their employment.

Hemp Seed is frequently given to cause the increased production of eggs, an effect which it can only produce at the sacrifice of the health of the fowls. Hemp is used in India as a most powerful medicine; the evil effects of the seeds on caged birds are known to all bird keepers. I regard it as one of the most injurious substances given to fowls.

Fresh Green Vegetables form an indispensable addition to the food of poultry. Those having a free range in the country supply themselves with this kind of food; when they are kept in other situations they should be supplied daily with turf, cabbage, lettuce, or turnip leaves, and in the absence of these substances, as on shipboard, a little moistened corn, allowed to sprout, will be found very advantageous.

Cooked Vegetables, such as parsnips, carrots, turnips, &c., are much relished, particularly the former; they form an useful and wholesome variation in the diet.

Animal Food.—The most advantageous animal food for fowls, and on which they make the most rapid and healthy progress, consists in the worms, snails and insects that they obtain naturally when unconfined; I do not think that there is any other kind of food which conduces so much to their healthy condition; where it cannot be obtained, a small quantity of fresh meat (either raw or cooked) may be chopped small and given to them; it is, however, but a poor substitute for the natural insect food. The

maggots of the flesh fly, obtained by hanging up some meat to putrefy, are often employed, but I doubt very much, whether, in wholesomeness, they are at all equal to worms, and the plan is objectionable from the offensive odour of the putrefying meat; if it is thought desirable to employ maggots the best mode is to allow the animal substance to remain exposed to the air until thoroughly fly-blown, if it is then buried eighteen inches deep, the maggots remain under ground until they attain their full size, when they work their way towards the surface, before changing into the perfect insects; the fowls soon discover their approach, and by scratching obtain a plentiful supply; the maggots by working their way through the soil are cleansed from any adhering putridity, and the search for the gradual supply affords amusement for the fowls; even employed in this way, however, I do not think flesh maggots so desirable as worms.

Tallow Chandler's Greaves, which are left on melting the fat from the stale scraps of the butchers, and the putrid accumulation of the marine store shop, are strongly recommended by some persons as causing an increased quantity of eggs. Animal substances which have once been in a state of putrefaction cannot by any subsequent process be formed into healthy food, and I can state from experience that greaves are exceedingly injurious to laying hens. Even dogs, when fed upon greaves, become offensive, mangy, and out of condition; their effect upon fowls cannot be less injurious.

It will not, I trust, be thought that the subject of food has been treated at an undue length, for I am confident that by far the greater number of diseases that occur in fowls arise from improper feeding. I have, therefore, arranged the following Table, in order to render the comparison of the relative value of the different substances more easily made.

TABLE

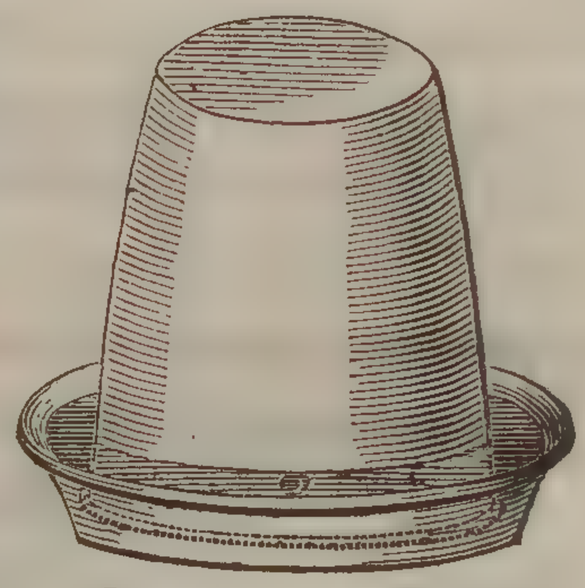
Showing the number of pounds of different substances contained in every 100lbs. of grain, &c., &c.

[When a (—) is used it signifies that the quantity has not been exactly ascertained.]

Every 100 lbs. of	Water.	Flesh-forming Food (Gluten, &c.)	Fat or Oil.	Warmth-giving Food (Starch, &c.)	Husk and Fibre.	Bone-making Substances, &c., &c.
	lb.	lb.	lb.	lb.	lb.	lb.
Wheat .. .. contains	12	12	3	70	1	2
Bran, Middlings, &c. ,,	14	18	6	53	—	5
Oats, with husk .. ,,	9½	15	6	47	20	2
Oatmeal.. .. .. ,,	9	18	6	63	2	2
Barley .. .. .. ,,	11	11	2	60	14	2
Malt Dust .. .. ,,	6	30	—	—	—	8
Indian Corn .. .. ,,	10	11	8	66	5	1
Rice, husked.. .. ,,	—	7	—	80	—	a trace
Dhoora .. .. .. ,,	12	11	—	70	4	2
Buckwheat .. .. ,,	—	11	—	—	—	—
Peas, &c.						
Beans						
Tares .. .. .. ,,	15	25	2	48	8	2
Lentils						
Potato .. .. .. ,,	75	2	a trace	19	3	¾

My position in connection with the *Cottage Gardener*, has given me the opportunity of examining more dead and diseased fowls than perhaps ever fell to the lot of one individual; and, as the most certain result of my experience, I can state that more than one half the cases that come under my care, or that are examined by me after death, are caused by errors in feeding.

Inflammation of the digestive stomach (which is situated between the crop and the gizzard), caused by the use of peas, beans, hemp seed, or by the endeavour to force fowls forward for exhibition, or to make them up for the sale room, is a most frequent result. Apoplexy from over-feeding, especially in laying hens, and paralysis from the same cause, are frequent. Inflammation of the egg passage is a common, and unless timely treated, another fatal complaint, generally taking its rise in over-stimulating food; and leg weakness, from the weight increasing faster than the strength, is common in Cochins.



Water.—A daily supply of fresh clean water is indispensable to the health of fowls. Many diseases are caused by their drinking from stagnant ditches and the impure and filthy drainings of manure heaps, &c. A cheap fountain, the best that I have ever seen, inasmuch as it is capable of being cleansed internally, may be made out of any wide-mouth earthenware jar and common glazed flower-pot saucer; by boring a small hole in the jar, an inch or an inch and a half from the edge, then filling it with water, putting the saucer on the top, bottom upwards, and quickly turning them both together upside down, when the water will be found to flow into the saucer to the height of the hole in the jar.

BREEDING.

Much variety of opinion prevails respecting the best mode of constructing the nests for laying and sitting hens. In this, as in all other cases, the nearer we can imitate nature the better; I object to the rows of pigeon-holes so frequently employed, as the close crowding of the fowls harbours vermin, and renders it difficult to thoroughly clean the nests after the eggs are hatched, and believe it will be found more conducive to health and comfort if the nests are quite distinct from each other, and are so formed that they can be entirely removed after the chicken are hatched. The plan that I have found to answer best is to use shallow baskets or boxes, which can be partially filled with sifted coal ashes, road drift, sand, or any similar material; on this a little short straw is placed, and the hen hollows out a slight concavity, which prevents the eggs rolling from under her, and in this way a very good imitation of a natural nest is obtained. The ashes do not harbour vermin, and I have found that eggs hatch much better than in those nests made solely of straw. Care should be taken so nearly to fill the basket or box that the hen can leave without having to spring up from the eggs, and can return without jumping down upon them, otherwise there is great risk of their being broken. Should the hen be particularly fearful, a board placed in a slanting position over the basket with the upper end leaning against the wall, will afford all the privacy required.

It is desirable that hens should be allowed to sit where they have been previously laying, as there is usually much trouble, except in the case of Cochins, in inducing a hen to sit steadily in a new nest. Hens evince a strong desire to lay where there are other eggs, hence nest eggs are usually employed; they are frequently made of chalk, but from the hardness of the material they are apt to break the new laid egg; soft white wood, turned into

the required shape, makes the best that I have seen, as it does not break the eggs or lose its shape, and is capable of being easily washed, if soiled. Natural eggs are not desirable for nest eggs, as they are very apt to break when they become stale, and so render the nest exceedingly foul.

When a hen becomes broody, which is shewn by her remaining on the nest a longer time than usual, and by the peculiar *clucking* noise she makes, it is desirable to give her three or four nest eggs to sit on, to test her steadiness for a day or two, and if she is found to sit well the eggs for hatching may be placed in the nest, either when she leaves it to feed, or by lifting her off in the evening; if a broody hen is removed from the nest during the day she usually flies back, at the great risk of breaking the eggs, whereas, if lifted off after dark, she generally remains quietly on the ground and allows the requisite number of eggs to be put into the nest, when she may be lifted back again.

The fresher the eggs that are used for hatching the better. If practicable, it is desirable that they should not have been laid more than a fortnight; although they will hatch after a much longer time, if carefully protected from the drying influence of the air and light, and from too high or too low a temperature, in bran or some similar material.

Eggs intended for hatching, should be kept with the large end upwards, otherwise they should be moved occasionally to prevent the yolk adhering to the upper side; the lid of the box containing them should be closed, in order to protect them from the light, and from the rapid changes of temperature, and the whole should, especially in summer, be kept in a cool place. When sittings of eggs are forwarded by railway or other public conveyance, it is customary to pack them tightly in bran, with considerable spaces between them, others recommend oats to be used; my own experience is most decidedly in favour of hay,

or soft straw, which, by its elasticity prevents all shaking, and enables the eggs to be forwarded any distance without injury.

This season, I forwarded two sittings of eggs to the far north of England, one packed most carefully in bran, the other in hay; of the first not one egg hatched, whilst every one of the second produced a chick; and a sitting that I received this season, which was similarly packed, every egg was fertile, although the basket had travelled from the north by coach, rail, and carrier.

The number of eggs placed under a hen usually varies from ten to fifteen; no fixed rule can be given—so much depends on the season of the year, the size of the eggs, and that of the hen. If the eggs are cooled during the sitting, which necessarily happens if they are so numerous that the outer ones are covered merely by the feathers, and not by the body of the hen, the chicken will be weakly or deformed; and as the hen constantly shifts their position by pulling those outside into the centre, and so forcing out the others, all become chilled in their turn, and a weakly brood is the result. A hen when sitting, separates the feathers to so great an extent, that the eggs, if they are not in too great number, are in contact with the naked skin of the breast, and such a quantity should only be given, as can be covered in that manner.

I am quite confident that a larger number of chicken can be ensured by sitting a moderate than a large number of eggs, and as to their health and vigour there is no comparison.

In those varieties which lay large eggs, such as Dorkings, I never give a hen more than thirteen eggs, and usually a smaller number; in winter, I would not exceed eight or nine. In the case of Cochins, where the eggs are small and the hens large, a greater number may be given.

With regard to the age of the parents, I believe that it is not so desirable to breed from hens in their first as in the second or third years; the chicken of first year fowls, are more leggy,

smaller, and less hardy and vigorous than those that are produced by more mature parents. When young birds are employed, it is desirable to mate pullets with cocks two or three years old, and cockerels with old hens.

Some persons even carry their objection so far, as not to allow young birds to hatch the eggs of older birds, being under the impression they do not sit with sufficient steadiness. This is certainly not true as regards Dorkings and Cochins, for I have found pullets of eight months age, exemplary sitters and nurses; and at the time of writing this in July, I have two Dorkings of fourteen months age, which are running about with their third broods, having hatched in January, May, and July.

To ensure healthy and large-sized chicken it is absolutely necessary that there should not be any relationship between the parents; breeding "in and in," as it is termed, is well known by all rearers of stock to produce diseased and weakly offspring, hence it is indispensable that there should be an introduction of fresh male birds every two or three years. In farm-yards where there are large numbers of poultry, it will be found by far the most desirable plan to keep separately a cock with from four to six of the best hens, and to hatch their eggs alone. By this means the chicken are all certain of coming from the best birds, and a much smaller number of cocks may be kept with the main stock of hens than would otherwise be desirable. The practice of allowing the hens to run with several cocks is calculated to deteriorate the breed materially, should therefore a larger number of eggs be required for hatching, than furnished by a cock and four or six hens, another set should be separated.

In all cases, over crowding must be carefully guarded against, especially where poultry are kept in a confined situation, for if the ground becomes tainted, the inevitable result is that disease breaks out, and that the chicken, being less able to withstand its influ-

ence than older birds, die off rapidly, in spite of good food, warm housing, and every attention that can possibly be paid to them.

Many persons are in the habit of lifting off the sitting hens in order to feed them, I believe that all such interference is uncalled for and injurious; the less a hen is disturbed whilst hatching the better—when hungry and thirsty she will leave the nest, and should be then fed most liberally. Whole corn I think the best for hatching hens, as it remains longer in the crop and so satisfies hunger for a greater length of time. In addition to food and water the hens should always be provided with a heap of dry ashes, to roll in, to enable them to free themselves from vermin.

On the twentieth day some of the chicken usually begin to chip the shell, and, generally speaking, they are all hatched on the twenty-first, that is on the same day three weeks that the eggs are placed under the hen. The practice of removing the first hatched and placing them in flannel by the fire side, is followed by many, but I do not see any possible advantage that can arise from so doing; it is impossible to give the exact temperature of the mother, and a degree of heat higher or lower must necessarily be disadvantageous; the only interference that I think desirable, is to remove, if it can be readily accomplished, the empty shells, otherwise the unhatched eggs are apt to slip into them, and the chicken, although furnished with power to break through one shell are unable to force their way through two. The addled eggs (which are readily distinguished by giving them the slightest possible shake, when the moving of the liquid contents is felt) may also be removed so as to give more room to the live birds.

I am aware that these recommendations to leave natural operations to nature are contrary to what are frequently found in books, but I am merely writing the results of my own experience, and I have always found the more the hatching hens are meddled with, the worse the result. It is a notorious fact that when a hen steals

a nest in some copse or place where she can remain unmolested, she almost invariably brings forth a more numerous and stronger brood than when she sits in the hen-house.

The chicken require neither food nor drink on the day on which they are hatched; in fact, *both are injurious*, as they interfere with the natural digestion of the yolk, which is absorbed into the bowels at the period of hatching, and constitutes the first food. If grits, oatmeal, &c., are spread before the hen on the twenty-first day, she is induced to leave the nest, and the last hatched chicken, which are not perhaps yet dried, are unable to follow, and being weakly, perish; or unhatched eggs may be left.

If undisturbed, the hen seldom leaves the nest on the twenty-first day, and on the twenty-second the chicken will be found strong enough to follow her, and any unhatched eggs may be destroyed, for those chicken that are not then able to follow her will seldom be found to repay the trouble that may be taken with them. The plan of cramming peppercorns and other spices down the throats of chicken is cruel in the extreme, and moreover, exceedingly injurious. I have found the best food to be two-thirds sweet coarse oatmeal and one-third barley meal, mixed into a crumbly paste with water; this is very much relished, and the chicken make surprising progress upon it, they are also very fond of a little cold oatmeal porridge, and, by way of variety, I sometimes give them a few scalded grits dusted over with a little barley meal to cause them to separate.

Milk is frequently used to mix the barley or oatmeal, but from the extent to which it is then exposed to the air it soon becomes sour in summer, and is decidedly injurious if employed in that state; no more, food, therefore, should be mixed with milk than can be eaten in a couple of hours. Sopped bread is by no means desirable, the chicken become weakly and affected with diarrhœa from its use, in fact it has not that degree of solidity which is re-

quisite to afford an opportunity for the exercise of the natural grinding action of the gizzard. A little chopped onion, or, still better, some finely shred green onion tops mixed with the food is highly advantageous, and, in the opinion of many persons, lessens very much the susceptibility to roup.

With regard to animal food there is none equal to the natural supply of worms and insects obtained by the hen; small worms, or a barrow full of mould, containing an ant's nest, may be given if the chicken are in a confined situation, and will be found far superior to boiled egg, chopped meat, or any more artificial substitute. Curds are frequently used, and, I believe, furnish the best substitute for the natural insect food, but I have had no experience in their use, as I have never kept, nor even think it desirable to keep fowls, or at all events to rear chicken, in situations where their natural food is unattainable. It is requisite that chicken should either have a constant supply of food or be fed at very short intervals—even every hour is not too often, if practicable.

Cooping, which is so frequently employed to restrain the wandering of hens with chicken, I regard as exceedingly objectionable. In many cases I admit it to be a necessary evil, but not the less an evil; a hen when cooped has no power of scratching for insects and worms (the best of all possible food), the chicken are therefore confined strictly to the artificial diet with which they are supplied. Whatever also may be the difference in the temperature of the day or change of weather, she cannot alter her position, or seek shelter from cold, wind, or wet; the ground under the coop becomes foul unless the latter is moved frequently, and the hen does not so soon recover the effects of her confinement in sitting as when she is allowed her liberty and obtains green food to peck at.

It is frequently said that when hens are not cooped they roam

so far that the chicken become fagged, and that oftentimes they are left behind by the hen. I believe that if the hen and chicken are well fed, and at short intervals, this will not occur; but should giving them their entire liberty be objectionable, the plan of enclosing a small run with laths, wire-work, or netting, may be had recourse to. These contrivances may be either moveable or fixed; in the latter case the ground in the run may be turned up with the spade or fork occasionally, so as to give the hens fresh soil to scratch in. Many persons say they cannot confine their fowls in this manner, as they fly over; a little attention to the habits of the birds would enable them to prevent this inconvenience. Fowls never fly *over* any boundary, but always *on to* it, preparatory to descending on the other side, and if the top is constructed in such a manner that they cannot rest upon it, they evince a great disinclination to attempt the passage. The plan I adopt is to have five or six feet laths of a greater or less degree of stoutness as required, nailed three inches apart to two horizontal rails, the lower near the ground, the upper being eight inches below the tops of the laths, which are pointed.

I have found that this fence is sufficient to confine Dorking, Spanish, and even Hamburghs, but then the fowls have always an unlimited supply of every variety of food; and when I receive a bird I usually lighten one wing by running the scissors down each side of the ten primary quill feathers, which is a much better plan than cutting the shafts across, as in the latter case the bird is much disfigured.

In accordance with my suggestion, Messrs. Greening, of Church Gates, Manchester, have manufactured some of their patent fencing on the same plan, namely, spiked at the top and chicken proof below, as shewn in the cut; from experience I can recommend it as most efficient, and from its great strength and durability it is much more economical than the ordinary hexagonal pattern in common use.



During summer it is not requisite to remove the hen and chicken from these runs at night, but a little house made of a few boards nailed together, so as to resemble a dog-kennel, made water-tight, is necessary for shelter.

Some of the most successful breeders of Cochins have their grounds thus partitioned out and furnished with rude huts, boarded at the sides and covered on the top with some of the patent asphalte felt now so much used for roofing. This, if pro-

perly tarred, is perfectly waterproof, and being a bad conductor of heat, is warm in winter and cool in summer.

The common open circular wicker coop I regard as an exceedingly useful article in a poultry-yard, but not for the purpose to which it is generally applied, of keeping the hens *in*, but, on the contrary, for keeping them *out*. I have found it very convenient for feeding chicken under; the oatmeal, grits, and other expensive food used for the young birds is apt to be devoured by those of advanced growth, an evil which is readily prevented by placing it under a large coop which admits the younger chicken, and enables them to feed undisturbed by the others.

The remark is often made, that chicken reared in the country by cottagers are more vigorous and healthy than those bred in the most expensive poultry houses; this I believe to be entirely owing to the more natural circumstances under which they are brought up. Fresh air, fresh grass, and fresh ground for the hens to scratch in, far more than counterbalance the advantage of expensive diet and superior lodging, if these latter are unaccompanied with the more necessary circumstances just described.

The plans here recommended I found to be more than ordinarily successful during the most unfavourable chicken seasons, even on the cold clay soil in the neighbourhood of London, and I have there severely tested their perfect efficiency with regard to Cochins, Dorkings, Spanish, and Hamburghs.

In cases where fowls are bred *in and in* to preserve peculiar markings, or where, so to speak, a very artificial variety has been produced, great delicacy necessarily results; this, for example, is the case in the Sebright Bantam, and hardiness cannot be expected in such breeds; as well might the breeder of King Charles' spaniels or Italian greyhounds expect similar success to that of the rearer of the Scotch terrier or sheep dog.

When chicken are hatched in the winter, or early spring months, either for competition in the chicken classes at the summer poultry shows, or for table use, some slight modification of these proceedings is requisite. I have tried enclosed rooms, both heated by stoves and fire-places and without, but have never found them answer, and am confident that even in winter chicken do better in an open shed than in any other situation; the shed, however, must face the south, and be warmly and closely sheltered from the north and east. The hens must be placed in coops, where all the sun can reach them; and there should be a little run of a few feet, enclosed by laths, wire-work or netting, for the hen and chicken to exercise in. The common triangular wooden coop is a very useful one for early chicken; but it should have a false bottom, to keep them off the cold ground, and this should be made to slide in and out, so as to be readily removed and cleaned. The coops, at night, should be warmly covered up with sacking or matting, and plenty of short hay or soft straw placed in the interior. The most successful breeder of early Cochins in the year 1853, reared all his birds in a shed thus arranged; but, instead of coops, he employed snugly built brick boxes, with abundance of short straw for the hen and chicken to sleep in; and in front of each box was a little alley or run, enclosed by laths, for an exercise ground,—the run not extending in front of the shed, so that it was not subject to be damped by the rain or dew.

Another precaution necessary to be taken with early chicken, even after they have attained some size, is to avoid letting them run in the grass whilst it is wet with dew, otherwise they are very apt to get chilled, and die with cramp. When hens are cooped care must be taken to supply them with gravel and a little mortar rubbish, or broken oyster shells,—the first being required for the digestion of the food, the second to furnish the materials of the bones of the growing chicken.

As I have elsewhere stated, the rearing of early chicken is always attended with risk and trouble, and extraordinary success must not be expected; it should only therefore be attempted under favourable circumstances; and unless chicken are bred for the summer poultry shows, or for early table use, for which purpose they fetch a high price in the market, it is not a desirable proceeding; for the best and finest birds, that alone should be kept for stock, are those hatched in April and May, as they attain their full size without having their growth once checked by cold.

Chicken, on the contrary, which are hatched at a late period of the year, have their growth checked by the colds of winter, and consequently never make large birds; hence the practice of hatching Bantams in autumn to prevent their attaining a large size, an object which is only accomplished by a sacrifice of constitutional strength and hardihood.

PROFITABLE VARIETIES.

In a work of this extent it is impossible to do more than allude to several of the least important varieties of the domestic fowl, and this is of less moment as the general directions given with regard to feeding, breeding, &c., apply, with very slight variations, to all the different breeds.

COCHINS OR SHANGHAES.—Cochins are perhaps the most popular fowl at the present time, and, in the opinion of many, deservedly take the first place on account of their good qualities as profitable stock, no less than from the estimation in which they are held as fancy fowls. So extensively have they been diffused over the entire length and breadth of the land, that a lengthened description of their peculiarities is scarcely requisite. Their large



COCHIN CHINA HEN

size, peculiar crow, small wings, rudimentary tail, and the extraordinary development of the fluffy feathers of the thighs and under parts of the body are familiar to all; these remarkable characteristics are carried to an extreme degree in the bird shown in the engraving, which is a representation of an imported hen, formerly the property of Mr. Andrews. In purchasing Cochins for stock, care should be taken to obtain birds of good quality, as breeding from second and third-rate fowls will be found exceedingly undesirable. As regards size, the cocks should weigh at least 10lbs., the hens 8lbs., when full grown; they should be short on the legs, which should be yellow and well feathered down to the tips of the outer toes, which should only be four in number on each foot. The tail feathers should, in both sexes, be very small, and almost hidden by the dense mass of saddle feathers covering the back, and the fluff should be well developed.

With regard to colour, at present the fashion is entirely in favour of the light buff birds, which, to command the highest prices, must even be destitute of dark markings on the neck hackle; or any slaty tinge in the downy under portions of the fluff, or of the body feathers. The rage for light buff birds I regard as an undue prejudice, and believe the darker breeds will be found quite as valuable for farming stock; in fact, the extreme prices which are commanded by the lightest birds are simply owing to the difficulty of breeding them perfectly free from dark colour; and am confident that it has had a very injurious effect upon the breed; for size and form have been sacrificed in the endeavour to rear birds of the desired colour, and in too many instances a set of small leggy almond shaped hens have taken the place of heavy square-built short-legged birds of a darker colour.

The white birds, though exceedingly ornamental, are scarcely equal in character to the coloured varieties, and the black have hitherto been only produced by crossing a buff with a white, and,

as might be expected from such an origin, their progeny are very uncertain in their colour.

Putting aside the value of Cochins as fancy fowls, their chief importance as profitable poultry depends on the immense supply of winter eggs yielded by the pullets of the year. This, I am confident, will eventually be found their strongest recommendation; for table birds, their length of leg, small breast, and game-like flavour, are objectionable, and the colour of their skin renders them very unfit for being used as boiled fowls. The attempt to breed pure Cochins with a fuller breast I believe to be perfectly futile, their wings are so small in size that they never fly, and the muscles which move the wings and form the entire mass of flesh on the breast, are consequently of small size also; it would be as reasonable to expect the muscles of a blacksmith in the arms of a draper, as the plumpness of a Dorking on the breast of a Cochin. The hens are extremely good sitters, their large size enabling them to cover a great number of eggs, and their docility, and the readiness with which they sit in any situation in which they may be placed when broody, being also great recommendations. I have found that the eggs hatch remarkably well, and that the chicken are equally, if not more hardy than those of other fowl.

In speaking of their good qualities, their contentedness in a comparatively small space, their attachment to home, and the ease with which they are confined by a three feet fence, must not be omitted. Their chocolate coloured eggs, though small, are of good flavour, but they have not yet been sufficiently introduced into the markets to state how they are appreciated by the public at large. With regard to their laying twice in one day, such an event happens by far too rarely to be taken into consideration when speaking of their economical value, and when it does occur no egg is laid on the following day. The great drawback

to Cochins, as farmers' fowls, is the large quantity of food they require, which, notwithstanding all that has been said to the contrary by their exclusive admirers, is considerably greater than that consumed by other varieties, and their disposition leads them to remain at home instead of seeking for worms and other food in the fields; in fact, the old birds seem not to care for the large earth worms, which are so greedily devoured by all other fowls.

BRAHMA POOTRAS.—In the first edition of this book I inserted the description, from actual observation, of a pair of these birds that had been sent to this country from the United States, by Dr. Bennett, who claimed to be the original holder of the variety, and I left the question as to their being a distinct breed an open one; since that article was published a more extended experience and the opportunity of making anatomical examinations of very many specimens, have led me to form a decided opinion respecting their origin and true character.

All the Brahmas that have come under my notice, and I have made a point of seeing as many as possible, have been of either one or the other of the three following varieties, namely:—

1. Grey Cochins.
2. Cross-bred Cochin and Dorking.
3. Cross-bred Cochin and Malay, or Chittagong.

That the best of these birds are nothing more than grey Cochins, is proved by the fact that they have been frequently imported from Shanghae with the buff birds, ever since the latter have been introduced, and I know personally that the descendants of Grey Cochins, which were thus introduced into this country before the name of Brahma was ever heard of, have taken prizes as Brahma Pootras; the circumstance that those presented to the Royal Aviary were sent over from America as Grey Shanghaes would alone be sufficient to settle the question. As to the name which has been given to these birds, there is not one tittle of evidence

to prove that they ever came from the region of the Brahma Pootra river, which, in the lower part of its course, is within one hundred and fifty miles of Calcutta, running through territory which has long been in the possession of the British; further from its mouth it flows through the country of Assam, to which some years since the East India Company sent two most observant naturalists to report on the natural history of the region, and had any such remarkable fowls existed it is scarcely credible that they could have escaped observation. A further and even more conclusive proof, if one were needed, may be found in their anatomical peculiarities; it is a fact, universally recognized by comparative anatomists, that the distinguishing characters of nearly allied animals are more strongly marked in the bones of the skull than in any other part of the body; if the skull of a Cochin be examined there will be found in the frontal bone, exactly under the base of the comb, a deep narrow groove running from before backwards, this remarkable structure is peculiar to these birds, being found in no other variety whatever, and is as strongly marked in the first named variety of so called Brahmas as in the Buff Cochins.

When it was found that grey birds were realising large sums, every mode of raising them was put in practice; single grey Cochins were mated with buff, and the progeny, when of the desired colour, were sold as Brahmas; in other cases Buff Cochins were paired with light Dorking hens, and many of the selected chicken found their way to the sale room. Under my own eye last season many of these birds were so manufactured; during the autumn, after the breeding for stock purposes was over, a Buff Cochin cock was allowed to run with some Dorking hens, the eggs of the lightest hen were hatched, and the Chicken were all greys, some were clear-legged, some white-legged, others five-toed; but several had well-feathered yellow legs with four toes, and these were undis-

tinguishable from a large number of the birds sold as Brahmas. On examination I found the frontal groove strongly marked, although, as might be expected, in a rather less degree than in a pure bred Cochin.

The birds originating in the Malay or Chittagong cross have been chiefly imported from America, I cannot therefore give the particulars of their manufacture, but the long snaky neck, the upright gait, and the peculiar carriage of the head, render other evidence unnecessary, These birds also have the characteristic frontal groove.

After what has been stated, it will scarcely be expected that any lengthened description of these birds should be given. The best are simply Cochins, and as silver pencilled Shanghaes *or* Brahma Pootras, they were originally avowedly exhibited at the London shows. The Mongrels have every variety of form and almost of colour; from the most celebrated yards are shewn clear legs and feathered legs; yellow legs, and white legs; pea combs and single combs; white birds, grey birds, and even black birds, all pure Brahmas!! One person writes that they roam over acres, another authority states that they are more domesticated than Cochins; on the one hand, you hear of their laying eggs as large as those of turkeys, and on the other of their being of the average Cochin size; one day they are said to crow like their buff relations, and the next we hear that their voices are much more mellifluous.

My opinion of their merits and demerits may be stated in a few words; of the half breeds I will only say that they are worthless for stock purposes, as they do not breed true to any particular character; of the true grey Cochin I may state, as far as my experience goes, that they are generally leggy compared with the best bred buffs, and that in many of them there is a remarkable tendency (especially in the hens) to accumulate internal abdominal fat, or in other words to "go down behind" a state of

things generally terminating in irregularity of the egg organs, which running on into inflammation is frequently fatal; at the same time, however, I have no doubt but that by careful breeding for a season or two they may be produced in every respect equal to the buff birds; Dr. W. C. Gwynne, who has reared them longer than any other amateur in this country, states his conviction that the genuine strain are a very good variety of grey Cochin, without the slightest cross: this verdict respecting them, coming as it does from one of the greatest admirers and most successful rearers of Brahmas, will, I have not the slightest doubt, be eventually universally acquiesced in; with regard to their hardihood as chicken, I may state that the most successful rearer of Cochins in the year 1853, to whose plans I have already alluded, and who spared no expense in getting first rate stock, informs me that he has reared Brahmas and Cochins in the same brood, and that he has not found the former by any means the hardier variety.

Dorkings.—To those who rear chickens for the table there are no fowls so well adapted as the coloured Dorkings; though not remarkable as layers, as sitters and nurses they cannot be surpassed; whilst their large size, plump breasts, short legs, and delicate white flesh, render them the most desirable table birds.

Latterly much attention has been paid to this variety, and the result has been that great improvements in their size and good qualities have been effected. The engraving represents one of the old birds, of whom it has been truly said, "Their qualities surpass their charms." In the improved kinds the head is smaller, the under part of the breast fuller, and the carriage of the bird more elegant, the body being more compact; the feathers are also firmer, and I have found along with this latter character that the birds are hardier and less subject to diseases of the egg organs. Dorkings vary very much in colour, and



SPECKLED DORKINGS.

there is some difficulty in breeding them true to any marking. My own opinion is decidedly in favour of the dark birds, both as to appearance and hardiness, and I think there are no more noble fowls than a heavy, broad-chested, dark Dorking cock and a compact short-legged hen. Dorkings are bred with both single and double, or rose combs, but the former are generally preferred, on the score of appearance. In purchasing Dorkings for stock, broad compact bodies and short white legs, with five toes on each foot, should be regarded as indispensable; the weight of these birds varies very considerably; in the pens which have taken prizes at the recent poultry shows the cocks have usually weighed about ten, and the hens eight pounds, but these weights are beyond the average, and such birds are not generally to be obtained.

The white Dorkings, although exceedingly ornamental, are not of equal value in an economical point of view, being much smaller in size, and narrower and longer in the body; they are almost invariably bred with a rose or double comb, and are obviously a distinct variety from the coloured Dorking, the latter having evidently derived its size, aptitude to fatten, and other profitable characteristics from the large Surrey fowl, which differs only from what is now known as the colored Dorking, in the absence of the fifth toe.

The great drawback to the value of this most useful breed is in the delicacy of the chicken; in spite of every care they too often exhibit the evil effects of a constitutional delicacy when about three weeks old, when their wings droop, and they die without any evident cause, whilst other birds hatched at the same time, and under the same treatment, are running about full of health and vigour. There is a very erroneous opinion, in many parts of the country, that Dorkings can only be successfully reared in Kent or Surrey; the absurdity of this statement is evident from the fact that the best Dorkings, those that have carried off the first prizes at the various poultry shows, have not, with few exceptions, been

natives of Surrey. The opinion has evidently arisen from their delicacy when chicken, and the fact that persons at a distance have often obtained a stock of Dorkings, and then without any introduction of fresh blood, they have continued breeding "in and in" until the breed has degenerated, not only in size, but in constitutional vigour; there is however no doubt but that on the dry chalky soil of Kent and Surrey they are more likely to do well than in any situation where the ground is wet or clayey.

Dorkings do not bear confinement well, requiring a good range; to attain a large size, and make good table birds, they must be liberally fed at every period of their lives, hence, and from the fact that they do not forage for themselves as well as the smaller varieties, they are not the best fowls for the cottager, especially as their egg producing powers are not remarkable.

I have found that pullets hatched in April and May usually, if well fed, begin to lay about Christmas, and there is no difficulty in hatching in the beginning of February, although there is always some uncertainty about rearing the chicken in cold weather; but I have found that by cooping the hens in a shed open to the south they have done much better than in an enclosed room.

To produce the fat fowls, that are seen in greater perfection in the London markets than elsewhere, and which are generally termed (although they are not) capons, Dorkings are cooped for fatting at the age of three to four months in summer and five to six in winter, being fed with oatmeal, mixed with water or milk; this must be given fresh three times a day, the first meal being *early* in the morning; and, in addition, the birds should be supplied with whole corn (either dry or boiled), gravel, clean water, and a turf or green meat; the most scrupulous cleanliness as to troughs, coops, &c., being observed. By these means a fowl, if previously well fed, will be fat enough for any useful purpose in a fortnight to three weeks; should they be required very fat, some mutton suet, or, what is equally good, the parings of the loins of mutton,

may be chopped up with the food. The unnatural process of cramming is frequently recommended, but I have never found it necessary. It should be borne in mind that a fowl cannot be kept in the greatest degree of fatness for any length of time, as the over repletion soon causes internal disease. The houses must be dry, quiet, dark, and warm, and the fatting coops carefully kept from draught, and warmly covered at night during cold weather.

SPANISH.—The true Spanish fowls, known by their uniform black colour, burnished with resplendant tints of green, the great development of comb and wattle, and the peculiar white face, which should be free from any other colour, are magnificent birds. Regarded as profitable poultry, their strong recommendation consists in the number and very large size of the eggs laid by them. The hens seldom attempt to hatch, and are bad sitters and nurses; their eggs should consequently be hatched by other varieties. The chicken are slow in feathering, but I have not found them so delicate as is sometimes stated, it is not however desirable to hatch them very early in the season, as they run about for a long time with naked necks and wings; and there is a remarkable difference in the fowls of the same brood, some being far superior in size and qualities to the remainder. In purchasing Spanish, blue legs, the entire absence of white or colored feathers in the plumage, and a large white face, with a very large high comb, which should be erect in the cock, though pendant in the hens, should be insisted upon. Although the flesh is of good quality, yet, from the want of size, the length and darkness of the legs, the Spanish is not equal to the Dorking for the table, and from the long period of their moulting, the laying in winter is considerably interfered with; nevertheless, the large size and number of their eggs renders them most profitable, and their handsome carriage and striking contrast of colour in the comb, face, and plumage, recommend them to all; they are perhaps better adapted for a town fowl than any other variety, as when full grown they seem to suffer less from

confinement to a small run; not unfrequently exceedingly good specimens may be seen in the stable yards of London.

The price of very good white faced Spanish always ranges high, notwithstanding that they have been largely bred in this country for many years; this arises from the extreme uncertainty in the character of the chicken, for even when produced from eggs laid by first rate stock red faced birds constantly make their appearance, and these, though equally useful as layers, are of no value as stock birds; it may be remarked, that those cockerels and pullets are most promising that exhibit a long bluish skinny face, as this generally changes into pure white.

In the West of England, a variety of the Spanish known as Minorcas are much esteemed as profitable layers. They differ from their more aristocratic relatives in possessing a white ear lobe merely, the face being red, and in a somewhat more compact and less leggy form.

GAME FOWL.—This variety, formerly so extensively reared for the cock-pit, is still bred by many on account of its beauty and utility. The game cock is distinguished by a long head with a strong massive beak, and a single upright comb; the chest is prominent and fleshy, the whole body muscular, the carriage bold and erect, and the feathers particularly close and firm; the hens are remarkable for their neat appearance, and are characterized by a large erect fan-shaped tail. In colour this breed varies greatly, amongst the most esteemed strains are those known as the black breasted reds, the brown breasted reds or gingers, the various piles, a term applied to such as have a proportion of white in the plumage, duckwings, blues or grays, and white and black. Game fowl fly well, and a good grass run is absolutely essential to their well being; the hens usually lay about five and twenty buff colored eggs before wanting to sit, and are unsurpassed as mothers and nurses; both sexes are good foragers, supplying themselves with a great portion of their food. As table fowls they are small,



BLACK BREASTED RED GAME.

though plump, the quality of the flesh being very superior. The pugnacious disposition of the cockerels is much against them in a profitable point of view, and it is desirable to cut off their combs and wattles at the age of five or six months, otherwise, from fighting, much suffering and loss of blood ensues, this operation is usually performed with a pair of sharp scissors, and the application of a little green vitriol dissolved in water will be found immediately to check the effusion of blood.

HAMBURGH FOWLS.—There are two very distinct varieties of these birds, the spangled and the pencilled; where fowls are kept mainly for the production of eggs, no breeds are so advantageous; and as they are comparatively unknown in many parts of the country, I have entered rather fully into their description. I am indebted to an amateur, an extensive breeder of the spangled variety, for the following account of their merits.

"*Gold and Silver Spangled Hamburghs.*—These very beautiful varieties have not hitherto attracted the attention which their intrinsic merits so justly deserve. Indeed, except in the northern counties, they have been until lately almost unknown.

"I will endeavour, as briefly as possible, to put before my readers, firstly, the origin, habits, and economical merits, and, lastly, the desired points of beauty of these dandies (*par excellence*) of the poultry yard.

"Firstly as to their history and origin—Unlike the pencilled Hamburghs, which are imported wholesale from Holland, the spangled birds are never so obtained, and although similar in some of their habits, they are infinitely more hardy than their pencilled rivals, suffer less from cold, lay better in winter, and are far less subject to roup; they also attain to a considerably greater weight and size. I am myself rather inclined to consider them, as they have for years undoubtedly been, natives of our northern counties, more especially Yorkshire and Lancashire, although they are said to be common in Russia and the northern countries of

Europe. The Spangled Hamburghs, or Pheasant Fowls, as the north country breeders call them, are, in my judgment, the best and most regular layers I can recommend; but in this respect the gold and silver varieties somewhat differ. I have generally found that the pullets of the former variety commence laying at about six months old, and, if the season is moderately warm, they continue to lay about nine eggs a fortnight, until their moulting time the following year—I should say that on an average they lay about 200 eggs per annum. They are everlasting layers, in the strictest sense of the word, never sitting, and recommencing their labours of production about two months from the commencement of their moult. Their eggs are of a fair size, of a very light pinky brown colour, and excellent flavour. Indeed, in the latter quality the eggs of the Hamburgh fowls generally are not to be surpassed.

"It is the birds of silver variety, however, which I regard and recommend as perfect miracles of egg-producing constancy. They commence laying, if in good health and with a *good run* (an essential to the well-doing of both the varieties), at *five* months old, and generally lay at least six days out of the seven, until the moulting season arrives—in all probably some 250 eggs. They very quickly get their new plumage—and in six weeks recommence their labours with the same praiseworthy diligence, until another season passed warns them that moulting time is again at hand. After the second year I do not consider it advisable to keep them for laying purposes, although I think the best chicken are bred from them after that period with a young yearling cock.

"Like their golden relations they never sit, and rarely evince the slightest desire to undertake the task of incubation. I feel quite confident that no fowl produces so much *egg stuff* with so *small an amount of food*. Give them a good run, a clean, dry, warm house at night, and one quarter of the food you bestow upon Cochins, and you will have no further trouble with them. They feather early and quickly, and may safely be hatched early in April.

"I must not, however, omit to state one drawback which there is to the keeping my spangled pets—they fly like pheasants, and know not bounds. They are great enemies to flowers, fruit, vegetables, indeed, anything they can lay hold of; and although capable of being made as tame as any other fowls, in their instincts they seem almost more like game than domesticated poultry. However, as a balance to this, there is no fowl so capable of taking care of itself, of finding its own food, of avoiding danger, and of repaying its owner handsomely for the slight care it demands at his or her hands. Indeed, I cannot recommend to a beginner in poultry-keeping a more beautiful and interesting, or a more profitable selection.

"There is much difference of opinion about the desired points of beauty in these birds. For the exact requirements in the north country shows I must refer my readers to the Rules of the Yorkshire Societies, and I will therefore confine myself to a brief and general description of what I consider requisite for perfection in these birds, and firstly as to the golden variety; although, with the exception of a few observations which I shall make about the cocks, the same points are almost requisite in both varieties.

"In the cocks, the comb should be flat, rose, stretching far back on the head, and ending in a pike—at least an inch and a quarter in width, and as square in shape as possible; the ear lobe white; the neck hackle in the golden variety, of which I am now speaking, black fringed with gold; the back, breast, and legs, regularly spangled, and the larger and brighter green black the spangles the better; the saddle feathers small and spangled; the tail long, full, and of a brilliant green black; the legs light grey blue; toe nails white. The same description applies to the hens, who should have a flat rose comb, not lopping, but upright; the ground colour of the plumage should be a rich red gold or burnt sienna colour. One great point of beauty also, both in the cocks and hens, is that

the wing should be regularly laced, as in the spangled Polands. The great difficulty in breeding the cocks is the tendency they have to come with black breasts and red backs—and for show such birds are valueless, although it is said more likely to throw good pullets than the spangled breasted birds which are sometimes termed hen-feathered. The *silver* spangled cock should not be hen-feathered, the hackle, and saddle feathers should be white, the latter very long, the tail spangled black and white, the breast regularly spangled up to the throat, and in colour the clearest white for the ground, and the brightest green black for the spangles is requisite. The lacing of the wing in this variety is quite a *sine quâ non*, both in the cocks and hens; and in the latter the tail should be clear white, with three or four large circular spangles upon it, but no other dark markings whatever. The neck, back, breast, rump, and legs, should be regularly spangled, and there should be a total absence of patchiness in the markings. In both varieties great distinctness of colour is requisite, and from the delicacy of the plumage the slightest approach to breeding *in and in* is sure to make the produce utterly valueless. In conclusion, the carriage of the cocks should be lofty and upright with the breast thrown forward like the Polands; the weight of the male birds from 5lb. to 6lb, of the hens from 4lb. to 5lb., or a little more."

There is, in addition to the gold and silver spangled, a third variety of these fowls, in which the whole plumage is of a glossy green black, the other characters being similar to those above described; these are termed Black Pheasant Fowls in the north of England.

The term pheasant fowl, as applied to the spangled Hamburgh, takes its origin from the crescentic moon shaped markings, which resemble those of that bird; and the term Moonies is also sometimes applied to them from the same cause.

Pencilled Hamburghs.—This variety is also of two colours,

golden and silver, the hens in both should have the feathers of the body distinctly pencilled or marked across with several separate bars of black, the hackle in both sexes should be perfectly free from dark marks, the comb a piked rose, the ear lobe white, and the legs blue as in the spangled Hamburghs, the tail should be very large and black or bronzed. The cocks do not show these pencillings, but are white or brown in the silver or golden birds respectively. The birds are of a compact form, and very graceful sprightly carriage. They do not sit, but lay exceedingly well, hence one of their common names, that of Dutch every day layers, they are also known in different parts of the country as Chitteprats, Creoles, or Corals; Bolton bays and grays; and in some parts of Yorkshire by the erroneous name of Corsican fowls. Large numbers are imported from Holland, but the birds bred in this country are much superior in size, retaining, however, their profitable characteristics.

POLAND FOWLS.—Poland fowls are characterized by the presence of a large top-knot, which, in the cocks, is composed of feathers resembling those of the hackle, and in the hens forms a dense globular tuft; a very small crescent shaped comb is usually present, rising like two small horns from the arched and dilated nostrils. Several varieties of colour exist; in the black birds there should be an entire absence of white except in the top-knot, in which the less black the better, the chest should be very prominent and fleshy, the legs dark, the wattles large and pedulous.

The spangled Polands, both gold and silver, are rather larger and less compact; and in addition to the crest, many possess a large tufted beard. Other varieties, as buff, white, &c., also exist, but they are less frequent. Polands are very good layers, but do not sit; as table birds they are not surpassed by any variety in quality and plumpness, although their small size is against them as a market fowl, and their delicacy as chicken is also a considerable drawback; from the latter circumstance, they will scarcely be

found entitled to rank as profitable poultry, except on dry, sandy, or chalky soil, and in warm, sheltered situations.

Malay Fowls.—Malays are large leggy fowls, with a very upright carriage, small tail and clear legs, their heads and necks are long and snaky, and distinguished by a small warty comb; the hens are fair layers and remarkably good sitters and nurses. Malays are of almost every variety of colour, black, white, grey, &c., though the most common tint is a cinnamon brown. They are not as largely bred as formerly, for as egg producers they are not very profitable, and their large limbs are against their use as table fowls. What is termed the Pheasant Malay originates in a bad cross between the Malay and spangled Hamburgh, in which the good qualities of both breeds are sacrificed.

Bantams, Silk Fowls, Frizzled and Rumpless Fowls, &c., &c., can hardly be regarded as profitable poultry, but come under the description of fancy fowls. As paying stock, my opinion is in favour of one or other of the following varieties:—

For market fowls for table use, the coloured Dorking is unequalled.

For the production of eggs, Hamburghs where there is a free range; Cochins and Spanish where there is less space; the first being the best winter layers, the latter yielding the largest eggs.

Many persons recommend cross breeding fowls for the purpose of improving upon certain varieties; it is difficult to see by what cross the qualities of Dorkings, as table fowls, can be improved; or the superior laying properties of Hamburghs, Spanish, and Cochins, increased.

To improve the hardihood of Dorkings some very experienced persons have recommended crossing a Malay cock with Dorking hens; in this case care must be taken to kill all the cross-bred chicken, as, if bred from again, a set of variable, worthless mongrels are the result. I have myself, however, never seen any cross-bred fowls equal for the table to the pure Dorking.

For home consumption, yielding numerous eggs, and large size

chicken, Cochins are very valuable; their hardihood, docility, and matronly habits, enable a greater number to be reared from the same number of hens, than can be obtained from any other variety; but as poultry for the market they are of little value.

In conclusion, I would strongly recommend persons who are at present breeding from common fowls, not to attempt to improve them by the introduction of one or two good male birds into the yard, but to obtain a good stock either by the purchase of birds or eggs, and to breed from them alone, avoiding of course all intermarriage between blood relations.

DISEASES.

The diseases of poultry may perhaps be more conveniently arranged under the heads of the different parts that are affected than in any more strictly scientific order. We may therefore describe them as affecting the Skin, Lungs and Air Passages, Digestive System, Egg Organs, Brain, and the Organs of Motion.

SKIN DISEASES.—When fowls are kept on unnatural food, and in closely confined, dirty situations, they are very liable to lose the feathers of the head and neck from a chronic disease of the skin. This complaint may be constantly seen in the fowls in the mews and stableyards in London, where it arises from the dirty, dark roosting places, and absence of fresh vegetable and insect food. Of course a radical cure is out of the question, unless the unnatural circumstances producing the disease are removed; if this is done, and a five-grain Plummer's pill given on two or three occasions, at intervals of three days, the disease is speedily removed, but the feathers will not be replaced until the next moulting season.

In Cochins which have been highly fed, particularly if peas and greaves have formed part of their food, a somewhat similar

disease is often seen; and, as it commences with whiteness of the comb, it is frequently termed "white comb." The treatment in severe cases is similar to that previously described; but mild attacks are said to yield to the application of turmeric mixed with cocoa-nut oil in the proportion of one part of the former to eight of the latter.

Moulting, being a natural action, cannot be regarded as a disease, but it frequently is much delayed, and the birds evidently suffer in such cases; it is therefore desirable, when fowls are not moulting favourably, to treat them as invalids, giving them food which is more nourishing than usual, such as a little chopped meat, either raw or cooked, keeping them in a warm and sheltered habitation, &c.

Lice often infest fowls to an extreme degree, and cause a great amount of irritation; this inconvenience may be prevented by giving them dry ashes to scuffle in, and keeping the houses clean and well lime-washed. When they are very abundant, flour of brimstone dusted under the feathers will be found a certain remedy; it is conveniently used if tied up in a piece of coarse muslin, or powdered from a flour dredger, or if more convenient, a pound or two may be added to the dust bath.

Diseases of the Lungs and Air Passages.—Roup is the most serious disease occurring in the poultry yard, not only on account of its affecting large numbers at one time, but also from the fact that it is not easily subdued by medical treatment; great confusion and difference of opinion have occurred from several distinct diseases having been confounded under this name. True roup commences with a sticky discharge from the nostrils, at first clear, but afterwards thick and of a very peculiar and offensive smell, the nostrils become partially or entirely closed, and there is consequently some slight difficulty of breathing, and a distention of the loose skin of the under jaw may be noticed; froth frequently appears at the inner corner of the eye, the lids swell, and in severe

cases the sides of the face swell greatly, the fowl becoming blind; from the discharge being wiped on the feathers of the side and under the wing, they become matted together; and in addition to these symptoms there is extreme thirst. Roup is essentially a disease of the membrane lining the nose, similar in this respect to glanders in horses; I believe it to be highly contagious, and unless a roupy fowl is very valuable would recommend its being at once killed. I think the disease is often communicated by the discharge from the nostrils running into the water out of which the fowls drink. As to treatment, a roupy fowl should at once be removed from the yard, placed in a warm dry room, the nostrils and eyes sponged with warm water, and a solution of ten grains of blue vitriol to an ounce of water dropped into the nostrils, either from the front or through the slit in the roof of the mouth, warm stimulating food, as meal or bread and ale, and a little pepper should be given. Remedies given internally seem to have but very little effect on the disease, but I think I have seen more benefit from half a grain of blue vitriol given once a day in meal than from any other medicine.

Croup, from the similarity of its name is often confounded with Roup, from which, however, it is perfectly distinct, being inflammation of the wind-pipe, the symptoms are a difficulty of breathing and a rattling or peculiar noise in the throat, this, in some cases, is even musical; sometimes thick glairy mucus is coughed up, but there is never any swelling of the face or discharge from the nostrils, the disease is most frequent in damp weather, and yields readily to warm dry housing, and one-twelfth of a grain of tartar emetic.

Inflammation of the lungs is known by a difficulty of breathing, but without the noise of croup, the same treatment with tartar emetic is advisable.

Consumption, arising from the presence of scrofulous matter in the lungs, is produced by cold, damp, bad food, and is also inherit-

ed from parents; this disease being hereditary, it is worse than useless to attempt to cure fowls that are affected, as the chicken are certain to be tainted with the disease.

Pip is the name given to a dry horny scale which appears on the tongue, in all those diseases in which the fowl becomes feverish; it is only a symptom of internal fever and not a disease itself, the remedy is to remove the real disease causing it.

Gapes in chicken is caused by peculiar parasitic worms adhering to the inside of the windpipe; they are readily removed by stripping a small quill of its side feather, except an inch of the end, dipping it in spirits of turpentine, and inserting it in the wind-pipe; but as this remedy often excites fatal inflammation, I have suggested fumigation with the vapour of turpentine, by shutting the chicken up in a box, with some shavings moistened with the spirit, as long as they can withstand the action of the vapour, and the remedy has been found very successful.

Diseases of the Digestive Organs are simple in their treatment. A fowl sometimes becomes crop-bound from over-distending that organ; warm water poured down the throat frequently loosens the mass; but, if necessary, a perpendicular incision may be made at the upper part of the swelling sufficiently large to extract the swollen food, and it will be found to close again without the slightest difficulty; the fowl should, however, be kept on soft food for several days afterwards. Inflammation of the stomach, which is situated between the crop and the gizzard, is a very frequent cause of death in highly fed fowls—they mope, refuse to eat, pine away, and die; there is no cure for the disease, but it is readily prevented by the use of natural food —peas, greaves, hemp seed, being rigorously excluded.

In Diarrhœa, five grains of chalk, two grains of cayenne, and five grains of powdered rhubarb may be given, and if the discharge is not speedily checked, a grain of opium and the same quantity of ipecacuanha may be administered every four or six hours.

DISEASES OF THE EGG ORGANS.—The most important disease of these organs is inflammation of the egg passage, shewn by the laying of soft or imperfect eggs; this complaint is readily remedied by giving one grain of calomel and one-twelfth of a grain of tartar emetic, made into a pill with meal; sometimes soft eggs arise from a deficiency of lime, in which case, a little old mortar rubbish remedies the defect.

The calomel and tartar emetic, which I first recommended for this disease in the *Cottage Gardener*, has been frequently given in other diseases, such as inflammation of the stomach, &c., and I need scarcely say with the effect of aggravating the evil very materially; there is no universal poultry medicine.

Disease of the ovary, or organ in which the yolks are formed, is not unfrequent, when the comb and wattles become like those of the cock, and the hen crows frequently; such birds are generally but erroneously termed hen-cocks, they must not be confounded with the hen-feathered cocks spoken of in the article on Hamburghs.

DISEASES OF THE LIMBS.—Cramp in young chicken from exposure to cold and damp is very fatal to early hatches, it can be prevented only by warmth and dryness.

Leg weakness, which is most frequent in rapidly growing chicken and young birds, particularly Cochins, arises from a disproportion between the weight and strength of the animal, the bird in consequence, sinks down upon its hocks; I have found four or five grains of citrate of iron given daily in meal successful in every case in which I have employed it.

Inflammation of the feet, closely resembling gout, I have seen in many cases, particularly in Cochins; the feet become very hot and swell. One grain of calomel at night and three drops of colchicum wine twice a day, I have found afford considerable relief.

The bumble foot of Dorkings, is a swelling occurring in the ball of the foot, not attended with heat, but followed by ulceration

and a diseased growth. I have found that it may, to a great degree, be prevented by having the perches broad and low, not above four feet in height, as the disease is evidently set up in many cases, and increased in all, by the violence with which the heavy birds descend to the ground; from the low vitality of the parts affected, I have found that no treatment is attended with any beneficial results.

Broken wings are best treated by tying the points of the quill feathers together in a natural position and keeping the bird in an empty place, where there is no perch to tempt it to fly. Broken legs may be bandaged round by strips of stout brown paper soaked in white of egg well beaten up with a fork, the leg should be kept steady by two splints of wood until the paper has become dry, when it will be found sufficiently firm to remain secure if wound round with a turn or two of thread.

Diseases of the Brain are not unfrequent in overfed fowls, apoplexy being the most frequent. The birds affected fall suddenly from their perches and are found dead. Little can be done in the way of cure; much in the way of prevention, by abstaining from unnatural food; in an actual attack, if the bird is seen before death, it may be bled by opening the vein on the under side of the wing, but the chances of recovery are but small. Paralysis also arises from the same cause. In vertigo, which depends on an undue determination of blood to the brain, the fowls run round and round or stagger about; letting a stream of cold water on the head immediately relieves, this should be followed by a grain of calomel or ten of jalap, in severe cases it may be necessary to open a vein.

In most of the older poultry books certain nostrums, as rue and butter, are constantly recommended; rue is a violent irritating stimulant, and I am not aware of any disease affecting fowls in which its use is at all likely to be productive of good effects.

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